

Daily Math

Week 16 (2013-2014)

Mon. December 2, 2013

Tues. December 3, 2013

Wed. December 4, 2013

Thurs. December 5, 2013

Fri. December 6, 2013

Monday, December 2, 2013

1st

Simplify:

$$3x^5xy$$

Monday, December 2, 2013

1st

Simplify:

$$3x^5xy$$

Answer:

$$3x^5x^1y$$

$$3x^{5+1}y$$

$$3x^6y$$

Monday, December 2, 2013

2nd

Simplify:

$$4x^2 \div 2x$$

Monday, December 2, 2013

2nd

Simplify:

$$4x^2 \div 2x$$

Answer: $4x^2 \div 2x$

$$\frac{4x^2}{2x} = \frac{4}{2} \cdot \frac{x^2}{x}$$
$$2 \cdot x^{2-1}$$

2x

Monday, December 2, 2013

3rd

Simplify:

$$4xy \div x^2$$

Monday, December 2, 2013

3rd

Simplify:

$$4xy \div x^2$$

Answer:

$$4xy \div x^2$$

$$\frac{4xy}{x^2} = 4y \cdot \frac{x}{x^2}$$

$$4y \cdot \frac{1}{x} = \frac{4y}{x}$$

Monday, December 2, 2013

4th

A machine produces 1,030 candy bars in 5 hours. How many candy bars will the machine produce in 40 hours?

Monday, December 2, 2013

4th

A machine produces 1,030 candy bars in 5 hours. How many candy bars will the machine produce in 40 hours?

Answer: 40 hours is 8 times more than 5 hours. So the machine will produce 8 times more candy bars.

$$8(1,030) = \mathbf{8,240 \text{ candy bars}}$$

Monday, December 2, 2013

5th

Simplify:

$$\frac{36x^4y^2}{9x^3y^2}$$

Monday, December 2, 2013

5th

Simplify:

$$\frac{36x^4y^2}{9x^3y^2}$$

Answer:

$$\frac{36x^4y^2}{9x^3y^2}$$

$$\frac{36}{9} \cdot \frac{x^4}{x^3} \cdot \frac{y^2}{y^2}$$

$$4 \cdot x \cdot 1 = \mathbf{4x}$$

Monday, December 2, 2013

6th

While shopping for new school clothes, Javier spent \$68.00. He bought a pair of jeans for \$33.00 and some T-shirts for \$7.00 each. How many shirts did Javier buy?

Monday, December 2, 2013

6th

While shopping for new school clothes, Javier spent \$68.00. He bought a pair of jeans for \$33.00 and some T-shirts for \$7.00 each. How many shirts did Javier buy?

Answer: $\$33 + \$7(\# \text{ of T-shirts}) = \68

$$33 + 7t = 68$$

$$33 - 33 + 7t = 68 - 33$$

$$7t = 35$$

$$7t \div 7 = 35 \div 7$$

$$t = 5 \quad \text{Javier bought 5 T-shirts}$$

Monday, December 2, 2013

7th

Rearrange the numbers below in **ascending** order:

$\frac{1}{3}$, 0.003, 3.5×10^{-3} , 35%, 0.3

Monday, December 2, 2013

7th

Rearrange the numbers below in **ascending order**:

$$\frac{1}{3}, 0.003, 3.5 \times 10^{-3}, 35\%, 0.3$$

Answer: Converting all numbers to decimal approximations-- 0.3333..., 0.0030, 0.0035, 0.3500, 0.3000 --allows easy ordering from smallest to largest (ascending order): 0.0030, 0.0035, 0.3000, 0.3333, 0.3500. Thus,

$$0.003, 3.5 \times 10^{-3}, 0.3, \frac{1}{3}, 35\%$$

Tuesday, December 3, 2013 1st

Write an equation for: *Twice a number plus 2 is four.* (Let x be the variable.)

Tuesday, December 3, 2013 1st

Write an equation for: *Twice a number plus 2 is four.* (Let x be the variable.)

Answer: *Twice a number plus 2 is four.*

$$2 \text{ times } x + 2 = 4$$

$$2x + 2 = 4$$

Tuesday, December 3, 2013 2nd

Find the next two numbers in the sequence below:

15, 22, 19, 26, 23, 30, __, __

Tuesday, December 3, 2013

2nd

Find the next two numbers in the sequence below:

15, 22, 19, 26, 23, 30, __, __

Answer: The pattern is alternately adding 7, then subtracting 3. So...

15, 22, 19, 26, 23, 30, **27**, **34**

Tuesday, December 3, 2013 3rd

You have \$240 in a bank account. You have decided to deposit \$7 a week to your bank account. What is your balance after eight weeks?

Tuesday, December 3, 2013 3rd

You have \$240 in a bank account. You have decided to deposit \$7 a week to your bank account. What is your balance after eight weeks?

Answer: $\$240 + \$7/\text{week}(8 \text{ weeks})$

$$240 + 56 = \mathbf{\$296}$$

Tuesday, December 3, 2013 4th

The monthly payment on a loan is \$29.50 for every \$1,000 borrowed. At this rate, find the monthly payment for a \$9,500 car loan.

Tuesday, December 3, 2013

4th

The monthly payment on a loan is \$29.50 for every \$1,000 borrowed. At this rate, find the monthly payment for a \$9,500 car loan.

Answer:
$$\frac{\$29.50 \text{ payment}}{\$1000 \text{ borrowed}} = \frac{p \text{ payment}}{\$9500 \text{ borrowed}}$$

$$(29.50)(9500) = 1000p$$

$$280,250 \div 1000 = 1000p \div 1000$$

$$\mathbf{\$280.25 = p}$$

Tuesday, December 3, 2013

5th

Solve the inequality for x :

$$1 + 2x < 17$$

Tuesday, December 3, 2013

5th

Solve the inequality for x :

$$1 + 2x < 17$$

Answer:

$$1 + 2x < 17$$

$$1 - 1 + 2x < 17 - 1$$

$$2x < 16$$

$$2x \div 2 < 16 \div 2$$

$$x < 8$$

Tuesday, December 3, 2013

6th

Simplify:

$$24 - \sqrt{81} \div 3$$

Tuesday, December 3, 2013

6th

Simplify:

$$24 - \sqrt{81} \div 3$$

Answer: $24 - \sqrt{81} \div 3$

$$24 - 9 \div 3$$

$$24 - 3$$

21

Tuesday, December 3, 2013

7th

$$(7x - 12) - (3x - 2) =$$

Tuesday, December 3, 2013

7th

$$(7x - 12) - (3x - 2) =$$

$$\text{Answer: } (7x - 12) - (3x - 2)$$

$$7x - 12 - 3x + 2$$

$$7x - 3x - 12 + 2$$

$$**4x - 10**$$

Wednesday, December 4, 2013 1st

Simplify:

$$(2x)^2$$

Wednesday, December 4, 2013 1st

Simplify:

$$(2x)^2$$

Answer: $(2x)^2$

$$2^2 x^2$$

$$4x^2$$

Wednesday, December 4, 2013

2nd

Solve for x :

$$5x - 4 = 8 - x$$

Wednesday, December 4, 2013

2nd

Solve for x :

$$5x - 4 = 8 - x$$

Answer: $5x - 4 = 8 - x$

$$5x + x - 4 = 8 - x + x$$

$$6x - 4 = 8$$

$$6x - 4 + 4 = 8 + 4$$

$$6x = 12$$

$$x = 2$$

Wednesday, December 4, 2013 **3rd**

Evaluate $|14 - 6x|$ for $x = -3$

Wednesday, December 4, 2013 3rd

Evaluate $|14 - 6x|$ for $x = -3$

Answer:

$$\begin{aligned} & |14 - 6x| \\ & |14 - 6(-3)| \\ & |14 + 18| \\ & |32| = \mathbf{32} \end{aligned}$$

Wednesday, December 4, 2013 **4th**

Simplify:

$$2x^2 \cdot 3x$$

Wednesday, December 4, 2013 4th

Simplify:

$$2x^2 \cdot 3x$$

Answer: $2x^2 \cdot 3x$

$$2 \cdot 3 \cdot x^2 \cdot x$$

$$6x^3$$

Wednesday, December 4, 2013 5th

Simplify:

$$2(x^2)^3$$

Wednesday, December 4, 2013 5th

Simplify:

$$2(x^2)^3$$

Answer:

$$2(x^2)^3$$
$$2x^2x^2x^2$$
$$2x^6$$

Wednesday, December 4, 2013 6th

Simplify:

$$(2x^2)^3$$

Wednesday, December 4, 2013 6th

Simplify:

$$(2x^2)^3$$

Answer: $(2x^2)^3$

$$(2x^2)(2x^2)(2x^2)$$

$$2^3 \cdot (x^2)^3$$

$$8x^6$$

Wednesday, December 4, 2013 7th

Maggie spent \$30 at the county fair and all she did was go on the rides. If the cost of admission was \$8 and each ride cost \$2, how many rides did Maggie go on?

Wednesday, December 4, 2013 7th

Maggie spent \$30 at the county fair and all she did was go on the rides. If the cost of admission was \$8 and each ride cost \$2, how many rides did Maggie go on?

Answer: Admission + Rides = Total

$$\$8 + \$2(\# \text{ of rides}) = \$30$$

$$8 + 2r = 30$$

$$8 - 8 + 2r = 30 - 8$$

$$2r = 22$$

$$r = 11 \quad \text{Maggie went on 11 rides}$$

Thursday, December 5, 2013 **1st**

Which number is greater? Explain.

$$\sqrt{88}, 12$$

Thursday, December 5, 2013 1st

Which number is greater? Explain.

$$\sqrt{88}, 12$$

Answer: Since $12 = \sqrt{144}$

$$\sqrt{88} < \sqrt{144}$$

12 is greater

Thursday, December 5, 2013 2nd

Which number is greater? Explain.

$$-\sqrt{18}, -6$$

Thursday, December 5, 2013 2nd

Which number is greater? Explain.

$$-\sqrt{18}, -6$$

Answer: Since $-6 = -\sqrt{36}$

$$-\sqrt{36} < -\sqrt{18}$$

$-\sqrt{18}$ is greater

Thursday, December 5, 2013 3rd

Which number is greater? Explain.

$$14.5, \sqrt{220}$$

Thursday, December 5, 2013 3rd

Which number is greater? Explain.

$$14.5, \sqrt{220}$$

$$\text{Answer: } 14.5 = \sqrt{(14.5)^2} = \sqrt{210.25}$$

$$\sqrt{210.25} < \sqrt{220}$$

$\sqrt{220}$ is greater

Thursday, December 5, 2013 4th

Evaluate the expression:

$$2\sqrt{36} + 9$$

Thursday, December 5, 2013

4th

Evaluate the expression:

$$2\sqrt{36} + 9$$

Answer: $2\sqrt{36} + 9$

$$2(6) + 9$$

$$12 + 9 = \mathbf{21}$$

Thursday, December 5, 2013

5th

Evaluate the expression:

$$8 - 11\sqrt{\frac{25}{121}}$$

Thursday, December 5, 2013

5th

Evaluate the expression:

$$8 - 11 \sqrt{\frac{25}{121}}$$

Answer:

$$8 - 11 \sqrt{\frac{25}{121}}$$

$$8 - 11 \sqrt{\frac{5^2}{11^2}}$$

$$8 - 11 \left(\frac{5}{11} \right)$$

$$8 - 5 = \mathbf{3}$$

Thursday, December 5, 2013

6th

Evaluate the expression:

$$3 \left(\sqrt{\frac{125}{5}} - 8 \right)$$

Thursday, December 5, 2013

6th

Evaluate the expression:

$$3 \left(\sqrt{\frac{125}{5} - 8} \right)$$

Answer: $3 \left(\sqrt{\frac{125}{5} - 8} \right)$

$$3(\sqrt{25} - 8)$$

$$3(5 - 8) = 3(-3) = -9$$

Thursday, December 5, 2013 7th

Simplify:

$$\sqrt{20}$$

Thursday, December 5, 2013 7th

Simplify:

$$\sqrt{20}$$

Answer: $\sqrt{20}$

$$\sqrt{4 \cdot 5}$$

$$\sqrt{4} \cdot \sqrt{5}$$

$$2\sqrt{5}$$

Friday, December 6, 2013

1st

Simplify:

$$\sqrt{32}$$

Friday, December 6, 2013

1st

Simplify:

$$\sqrt{32}$$

Answer:

$$\sqrt{32}$$

$$\sqrt{16 \cdot 2}$$

$$\sqrt{16} \cdot \sqrt{2}$$

$$4\sqrt{2}$$

Friday, December 6, 2013

2nd

Simplify:

$$\sqrt{75}$$

Friday, December 6, 2013

2nd

Simplify:

$$\sqrt{75}$$

Answer:

$$\sqrt{75}$$

$$\sqrt{25 \cdot 3}$$

$$\sqrt{25} \cdot \sqrt{3}$$

$$5\sqrt{3}$$

Friday, December 6, 2013

3rd

Simplify:

$$7\sqrt{7} + 3\sqrt{7}$$

Friday, December 6, 2013

3rd

Simplify:

$$7\sqrt{7} + 3\sqrt{7}$$

Answer: $7\sqrt{7} + 3\sqrt{7}$

$$(7 + 3)\sqrt{7}$$

$$10\sqrt{7}$$

Friday, December 6, 2013

4th

Simplify:

$$12\sqrt{48} - 5\sqrt{12}$$

Friday, December 6, 2013

4th

Simplify:

$$12\sqrt{48} - 5\sqrt{12}$$

Answer: $12\sqrt{48} - 5\sqrt{12}$

$$12\sqrt{4 \cdot 12} - 5\sqrt{12}$$

$$12\sqrt{4} \cdot \sqrt{12} - 5\sqrt{12}$$

$$(24 - 5)\sqrt{12}$$

$$**19\sqrt{12}**$$

Friday, December 6, 2013

5th

Simplify:

$$\sqrt{40} + 3\sqrt{10}$$

Friday, December 6, 2013

5th

Simplify:

$$\sqrt{40} + 3\sqrt{10}$$

Answer: $\sqrt{40} + 3\sqrt{10}$

$$\sqrt{4 \cdot 10} + 3\sqrt{10}$$

$$\sqrt{4}\sqrt{10} + 3\sqrt{10}$$

$$(2 + 3)\sqrt{10} = \mathbf{5\sqrt{10}}$$

Friday, December 6, 2013

6th

Find the exact **perimeter** of a rectangle whose width is $\sqrt{108}$ cm and whose length is $\sqrt{192}$ cm.

Friday, December 6, 2013

6th

Find the exact **perimeter** of a rectangle whose width is $\sqrt{108}$ cm and whose length is $\sqrt{192}$ cm.

Answer: Perimeter of rectangle = 2(length + width)

$$P = 2(\sqrt{192} + \sqrt{108})$$

$$P = 2(\sqrt{64 \cdot 3} + \sqrt{36 \cdot 3})$$

$$P = 2(8\sqrt{3} + 6\sqrt{3}) = 2(14\sqrt{3})$$

$$**P = 28\sqrt{3} cm**$$

Friday, December 6, 2013

7th

Find the exact **area** of a rectangle whose width is $\sqrt{108}$ cm and whose length is $\sqrt{192}$ cm.

Friday, December 6, 2013

7th

Find the **exact area** of a rectangle whose **width** is $\sqrt{108}$ cm and whose **length** is $\sqrt{192}$ cm.

Answer: Area of rectangle = (length)(width)

$$A = (\sqrt{192})(\sqrt{108})$$

$$A = (\sqrt{64 \cdot 3})(\sqrt{36 \cdot 3})$$

$$A = \sqrt{64}\sqrt{36}\sqrt{3 \cdot 3}$$

$$A = 8 \cdot 6 \cdot 3$$

$$\mathbf{A = 144 \text{ cm}^2}$$